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THE IMPACT OF DYSMENORRHEA ON DAILY ACTIVITIES

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(Received 14 July 1986)

Summary—Dysmenorrhea has been considered a leading cause of occupational and school absenteeism among women, yet little is known about its actual impact and factors relating to its impact. Questionnaires about menstrual experiences, activities missed due to dysmenorrhea, perceptions of the consequences of missing these activities and questionnaires concerned with self-control and attitudes toward menstruation were administered to 293 college women twice, in a retrospective and prospective manner. Multiple regressions indicated that activity changes were influenced by menstrual symptoms, feelings of debilitation and perceived consequences of the activities missed. Although pain was a significant predictor of activities missed, results indicated that other cognitive factors accounted for a significant portion of the variance in predicting missed activities. These results were found in spite of the finding that the majority of women reported using medications specifically marketed for menstrual pain.

INTRODUCTION

Dysmenorrhea, or painful menstruation, affects between 25–75% of women (Coppin and Kessel, 1963; Klein and Litt, 1981; Weidiger, 1976). It is considered to be a leading cause of school absenteeism among adolescent girls (Klein and Litt, 1981) and the greatest cause of lost work-hours among women (Novak, Jones and Jones, 1975). Based upon Kistner's (1979) estimate of 140 million work-hours lost annually due to dysmenorrhea, Sobczyk (1980) calculated that an average of 2 or more work-days is lost per female employee per month. Others have suggested that menstrual cramps cost the U.S.A. 600 million lost work-hours and \$2 billion annually (Dawood, 1984; "Monthly Downtime", 1984).

The empirical data however do not seem to support these estimates. While 20–40% of adolescent girls in various studies blamed dysmenorrhea for missing school occasionally, only 3–14% reported missing school every month or every other month (Andersch and Milsom, 1982; Heald, Masland, Somers and Gallagher, 1957; Klein and Litt, 1981; Widholm, 1979). Findings that dysmenorrhea primarily affects women under the age of 25 yr (Sobczyk, 1980) and that absenteeism occurs primarily among the relatively small proportion of women with severe dysmenorrhea (Klein and Litt, 1981) suggest that dysmenorrhea may not have the economic impact suggested by Dawood (1984) and Kistner (1979). In spite of the absenteeism data and the lack of support for any negative impact of the menstrual cycle on perceptual, motor or cognitive performance (Sommer, 1983), it continues to be assumed that dysmenorrhea is responsible for the disruption of important activities for substantial numbers of women. This assumption seems somewhat surprising in the absence of empirically-derived data concerned with absenteeism attributable to dysmenorrhea and the availability of presumably effective medication for dysmenorrhea that is currently available.

This inconsistency might be explained from a cognitive-behavioral perspective. Ruble and Brooks-Gunn (1979) considered menstrual debilitation to be more of a cultural than a biological phenomenon. Ruble, Brooks-Gunn and Clarke (1980) suggested that menstrual attitudes may induce a socially-conditioned stressful reaction to menstruation, and thus aggravate symptoms, as well as influence symptom appraisal.

Empirical data concerning the persistence of dysmenorrhea and its effects on daily activities would be important for further understanding of the menstrual experience and the development of treatment methods to ameliorate its impact. One potential avenue of investigation is the evaluation of the impact of dysmenorrhea on various types of activities, and how cognitive factors affect the impact of dysmenorrhea on daily activities. A model for this evaluation might be that

suggested by Lazarus and his colleagues concerning appraisal and coping with stress (Lazarus, Averill and Opton, 1974; Lazarus and Folkman, 1984; Lazarus, 1981). Among the relevant factors for the appraisal and impact of dysmenorrhea might be the amount of reported pain, as well as cognitive factors such as the perceived consequences of missing an activity, self-control skills and attitudes toward menstruation.

The present study evaluated how menstrual symptomatology and cognitive factors affected women's daily activities during two menstrual cycles. In order to evaluate the effects of memory and cultural expectations, data were collected in a prospective as well as retrospective manner.

METHOD

Subjects

Subjects were 293 women between 17–24 yr who were recruited from Introductory Psychology classes at a Midwestern university.

Procedure

All Ss completed questionnaires, concerned with menstrual experiences and daily activities, at two testing times 5 weeks apart. During both testing sessions, Ss were given the Menstrual Symptom Questionnaire—Revised (MSQ-R; Chesney and Tasto, 1975; Stephenson, Denney and Aberger, 1983; Wildman and White, 1986), a questionnaire about their daily activities (Activities Questionnaire; AQ), questions about remedies and coping methods used, and questions concerning perceived consequences of missing scheduled activities.

In addition, during the first session, Ss completed the Menstrual Attitude Questionnaire (Brooks-Gunn and Ruble, 1980) and the Self Control Schedule (SCS; Rosenbaum, 1980), as well as items concerned with menstrual history and experience.

Instruments

The MSQ-R (Stephenson *et al.*, 1983; Wildman and White, 1986) differed from the original MSQ in several ways. On the original MSQ (Chesney and Tasto, 1975) respondents were asked to indicate the frequency with which they experienced each of the 24 menstrual symptoms during a 'typical period'. Stephenson *et al.* (1983) and Wildman and White (1986) suggested assessment of severity rather than frequency of symptoms, and assessment of the most recent menstrual period. Therefore the MSQ-R asked Ss to rate each symptom on a 5-point scale, ranging from 'none' to 'excruciating' for their last period only. In addition, Ss rated their overall pain/discomfort during their last menstrual period.

The MAQ (Brooks-Gunn and Ruble, 1980) consists of 37 items. Brooks-Gunn and Ruble found that these loaded on five factors: menstruation as debilitating, menstruating as bothersome, menstruation as predictable, menstruation as natural and the denial of menstrual changes.

The SCS (Rosenbaum, 1980) consists of 36 items addressing self-reported ability to cope with problem situations and to reduce the disruptive effects of aversive physical or emotional experiences.

On the AQ, designed for the present study, Ss indicated the number of activities they missed during the time period encompassing the day before the 2 days after the beginning of their most recent menstrual flow. The categories of activities were classes, work, extracurricular activities, homework, time with friends or on dates and routine tasks (such as shopping, cleaning, repairing things or cooking).

Women were also asked to appraise the consequences of attending the activities they missed. For each type of activity the consequences of attendance were rated on a 7-point scale ranging from extremely harmful/unpleasant to extremely beneficial/pleasant. The purpose was to assess the instrumental outcome of attendance.

Finally, Ss were asked to report remedies they used for their menstrual discomfort, such as oral contraceptives, prescription anti-inflammatory medication, prescription pain relievers, over-the-counter anti-inflammatory medication, aspirin or acetaminophen or diuretics.

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RESULTS

The women surveyed were aged 17–24 yr, with a mean age of 18.5 yr. The average reported length of menstrual flow was 5.2 days, with a range of 2–9 days. Menarcheal age ranged from 9 to 17 yr with a mean of 13 yr. On the global rating of pain severity, 70.8% of the sample reported pain that was bothersome or worse, 23.4% reported mild discomfort and only 5.8% of the sample reported experiencing no menstrual pain or discomfort. The majority of the women (68.0%) who reported using prescription ibuprofen (11.6% of all women) and 65.7% of the women who reported using prescription pain relievers (7.8% of all women) reported severe and excruciating menstrual pain while taking these medications.

Although 50% of the sample reported spending extra time in bed and 60.7% of the sample reported spending extra time resting during their menstrual periods, the majority of women did not report disruptions in their daily activities due to menstrual discomfort. Overall, 33% of the women in the sample reported missing one or more of the following activities on the day before or the first 2 days of menstruation: classes (12.6%), homework (14.7%), social activities (16.5%) and routine tasks (17.2%). Three times as many classes and homework projects were reported as missed due to menstruation as were reported missed during the intermenstrual period. Less than 1% of the 35.7% of the women who were employed missed work during menstruation.

There was a relationship between the amount of pain *Ss* experienced during menstruation and activities missed, such that one-half of the women with severe and excruciating pain, one-third of those with moderate pain and only one-fifth of those with mild discomfort reported missing activities during menstruation.

For the regression analysis of disruption in activities, the number of classes, homework assignments, social activities and routine tasks missed were summed. Absenteeism from employment was not included since it occurred very infrequently.

In order to obtain predictors of missed activities, the MSQ-R, MAQ and SCS were factor analyzed. The factor scores, along with perceived consequences of attendance, were used in multiple-regression analyses. All factor analyses were conducted using as principal-axis factor analysis followed by a Varimax rotation. The number of factors extracted was systematically reduced until only stable factors emerged. A stable factor was one upon which at least three items loaded saliently, i.e. at least three items had factor loadings of at least 0.45 and were at least 0.10 higher from their loading on any other factor (Gorsuch, 1983). For the MSQ-R, two factors emerged (menstrual and premenstrual). Five factors, similar to those obtained by Brooks-Gunn and Ruble (1980), emerged on the MAQ. Only the debilitation factor was used in the regression analyses because it was psychometrically superior and appeared most relevant to the present research. Three factors emerged on the SCS: problem-focused coping, mood and pain control and externality.

For the first measurement period, which was based on retrospective reports, perceived consequences of missing, the debilitation factor of the MAQ and both of the MSQ factors were the significant predictors in the regression analysis of missed activities during the menstrual period. Combined, these variables accounted for 23% of the variance in activity changes reported by women during the first assessment. The results of the prospective regression analysis at the second testing were similar, with the same variables, while not all individually significant, accounting for 21% of the variance (see Table 1).

The sample was then divided by the amount of pain women reported during their most recent menstrual period, and similar regression analyses were conducted for both retrospective and prospective reports (see Table 1). As with the whole sample, for women reporting severe and excruciating pain, both of the MSQ factors and perception of consequences of missing were significant predictors of missed activities. Together these variables accounted for 22% of the variance. The prospective results were similar, except that the MAQ factor of debilitation also reached significance in the regression equation. Together these variables accounted for 15% of the variance.

For women with mild and moderate dysmenorrhea, both of the MSQ factors, and perceived consequences of missing were again significant predictors of missed activities. In contrast to the first two groups however two factors from the SCS had significant univariate correlations:

Table 1. Predictors of disruption

Predictor	Time 1				Time 2			
	<i>r</i>	<i>r</i> *	<i>R</i> ²	<i>F</i>	<i>r</i>	<i>r</i> *	<i>R</i> ²	<i>F</i>
<i>Whole sample</i>								
		<i>N</i> = 284				<i>N</i> = 271		
Premenstrual	0.32*	0.26*			0.38*	0.09		
Menstrual	0.35*	0.21*			0.37*	0.06		
Consequences	-0.28*	-0.20*			-0.34*	-0.25*		
Debilitation	0.33*	0.12*	0.23	18.37*	0.26*	0.08	0.21	5.20*
<i>Severe/excruciating</i>								
		<i>n</i> = 105				<i>n</i> = 100		
Premenstrual	0.24*	0.28*			0.29*	0.10		
Menstrual	0.27*	0.19			0.29*	0.07		
Consequences	-0.35	-0.29*			-0.28*	-0.25*		
Debilitation	0.30*	0.14	0.22	8.35*	0.25*	0.23*	0.15	5.48*
<i>Mild/moderate</i>								
		<i>n</i> = 155				<i>n</i> = 152		
Premenstrual	0.29*	0.28*			0.34*	0.10		
Menstrual	0.21*	0.21*			0.31*	0.06		
Mood/pain	-0.19*	-0.11*			-0.22*	-0.16*		
Externality	0.19*	0.12			0.0	0.0		
Consequences	-0.28*	-0.25*	0.17	6.32*	-0.36*	-0.24*	0.18	6.27

r is a Pearson and an *r** a partial correlation. *R*² is the total variance accounted for by all variables in the equation. This *R*² is adjusted, conservative. *F* also corresponds to the total variance accounted for by all the variables.

*Significant at *P* < 0.05.

externality and mood and pain control. Overall, 17% of the variance was accounted for. The prospective assessment yielded similar results, with 18% of the variance accounted for. In this analysis the mood and pain control factor was a significant predictor in the regression analysis of activity changes, as well as having a significant univariate correlation with activity changes.

DISCUSSION

The menstrual history and experiences of the women in the present study suggest that they were representative of women in that age range, which is also the population most at risk for dysmenorrhea (Novak, Jones and Jones, 1975). A large proportion of women in the present study (94%) reported some degree of menstrual discomfort. These results are consistent with those of other recent studies (e.g. Wildman and White, 1986). The pervasiveness of dysmenorrhea appears to maintain in spite of the availability and use of both prescription and nonprescription pain relievers available for menstrual symptoms. These results suggest that either the medications available are not sufficiently alleviating the symptoms women are experiencing and/or women are not using the appropriate medications for their specific problems.

One possibility, supported by the finding that many women who reported using prescription medications continued to report menstrual pain/discomfort, is that many medications may alleviate some menstrual symptoms; however, women continue to experience varying levels of discomfort even with the use of appropriate medications. Further research on the utility of medications and on whether appropriate medications are being used most effectively by women would be useful.

Interestingly, little difference was found between retrospective and prospective reports of symptoms and activity changes, or between the retrospective and prospective predictors of missed activities. It is possible that the predictors of missed activities due to dysmenorrhea are relatively stable, not readily influenced by time or memory factors. Another explanation for the stability of findings may be the use of behaviorally-oriented assessment devices which did not rely on generalizations or reports of vague symptoms. For example, the MSQ-R used in the present study requested *Ss* to report symptoms of their most recent menstrual period rather than to rate their 'typical' period, as proposed by Chesney and Tasto (1975) in their original MSQ. Ratings of the most recent period might reduce the effects of forgetting and distortion over time, as well as the effects of social factors and stereotypes.

The finding that only a relatively small proportion of women, when compared with the large percentage experiencing some degree of dysmenorrhea, actually missed scheduled activities suggests that the impact of dysmenorrhea may be more in terms private events, such as the discomfort women experience or their cognitions about it, than in failure to meet responsibilities. In contrast to suggestions by Kistner (1979) and Dawood (1984; "Monthly Downtime", 1984) that absenteeism

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due to dysmenorrhea may be having a substantial impact on the economy, the present study found that less than 1% of the employed women in the sample missed work due to menstrual discomfort or pain. Further research is needed to assess absenteeism among women of various ages, educational levels and occupations.

Although women who reported experiencing severe and excruciating pain missed more activities than did women who reported mild and moderate pain, symptoms alone did not account for much of the variance in the prediction of missed activities. The results of the regression analyses suggest that while pain accounts for some of the variance in predicting absenteeism during menstruation, other cognitive factors also contribute significantly to the prediction. Menstrual symptomatology alone does not appear to be a good predictor of absenteeism; rather, the present data suggest that cognitive factors such as perceived consequences of one's absence and the view of menstruation as debilitating are also relevant. For women with mild and moderate pain, pain-management and other self-control skills also appeared important.

The results of the present study suggest that research and interventions designed to reduce the impact of dysmenorrhea should target how women perceive the consequences of their absence, as well as cognitive and pharmacological coping methods. Since consequences of attendance was an important predictor of missed activities for all groups of women in the present study, regardless of pain level, changes in women's environments, their perceptions of the importance of their contributions and/or direct contingencies for attendance may be a useful avenue for further exploration. Since the results of the present study suggest that the actual pain and/or discomfort experienced by many women during their menstrual period cannot be blamed unilaterally for disruption in women's activities, therapies designed to diminish the impact of dysmenorrhea might more successfully focus on environmental and cognitive factors. Further research should evaluate interventions concerned with increasing women's perceptions of the meaningfulness of their presence or absence at work, classroom or certain social events. Additionally, the present study suggests that various cognitions that may be amenable to cognitive therapies, such as the belief that menstruation is debilitating and lack of pain-management skills, may also interfere with women's attendance at activities during their menstrual periods.

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Dades bibliogràfiques:

PU: Behaviour research and therapy
AN: 1987 Vol. 25 Num. 2 Pags. 123-128
AU: Valene A. Gruber, Beth G. Wildman
TI: The impact of dysmenorrhea on daily activities

Referència: 12603145
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